



## IN THIS ISSUE

### Hazard Identification: Resolve to Reduce Incidents and Injuries

<b>SAFETY TALKS: Monthly Safety Topics</b> .....	4-5
<b>POLICIES AND PRACTICES: Noise Control &amp; Hearing Protection</b> .....	6
<b>SHOP TALK: Helping Employees Conquer Workplace Stress</b> .....	7
<b>FATALITY REPORT: Solvent Linked to Suicide</b> .....	8
<b>SPOT THE SAFETY VIOLATION: Defying the Laws of Physics and Common Sense</b> .....	8

## HAZARD IDENTIFICATION AND ASSESSMENT

### Resolve to Reduce Incidents and Injuries

One of the “root causes” of workplace injuries, illnesses, and incidents is the failure to identify or recognize hazards that are present, or that could have been anticipated. A critical element of any effective safety and health program is a proactive, ongoing process to identify and assess such hazards.

Start the new year off right (and safe) by brushing up on your hazard ID and assessment skills!

#### Here are six action items to help you out:

##### Action item 1: Collect existing information about workplace hazards

Collect, organize, and review information with workers to determine what types of hazards may be present and which workers may be exposed or potentially exposed. Use:

- Equipment and machinery operating manuals.
- Safety Data Sheets (SDS).
- Inspection reports.
- Injury and illness records.
- Workers' compensation records and reports.
- Patterns of frequently-occurring injuries and illnesses.
- Exposure monitoring results, industrial hygiene assessments, and medical records (appropriately redacted to ensure patient/worker privacy).
- Existing safety and health programs (lockout/tagout, confined spaces, PPE, etc.).
- Input from workers, including surveys or minutes from safety and health committee meetings.

**Read More on Page 2** ▶

- Results of job hazard analyses, also known as job safety analyses.

## Action item 2: Inspect the workplace for safety hazards

Hazards can be introduced over time as workstations and processes change, equipment or tools become worn, maintenance is neglected, or housekeeping practices decline. Setting aside time to regularly inspect the workplace for hazards can help identify shortcomings so that they can be addressed before an incident occurs.

- Conduct regular inspections of all operations, equipment, work areas and facilities. Have workers participate on the inspection team and talk to them about hazards they see or report.
- Document inspections so you can later verify that hazardous conditions are corrected.
- Include all areas and activities in these inspections, such as storage and warehousing, facility and equipment maintenance, purchasing and office functions, and the activities of on-site contractors, subcontractors, and temporary employees.
- Regularly inspect both plant vehicles (e.g., forklifts, powered industrial trucks) and transportation vehicles (e.g., cars, trucks).
- Use checklists that highlight things to look for.
- Before changing operations, workstations, or workflow; making major organizational changes; or introducing new equipment, materials, or processes, seek the input of workers and evaluate the planned changes for potential hazards and related risks.

## Action item 3: Identify health hazards

Identifying workers' exposure to health hazards is typically more complex than identifying physical safety hazards. Gases and vapors may be invisible, often have no odor, and may not have an immediately noticeable harmful health effect.

Health hazards include chemical hazards (solvents, adhesives, paints, toxic dusts, etc.), physical hazards (noise, radiation, heat, etc.), biological hazards (infectious diseases), and ergonomic risk factors (heavy lifting, repetitive motions, vibration).

One of the “root causes” of workplace injuries, illnesses, and incidents is the failure to identify or recognize hazards.

- Identify *chemical hazards*—review SDS and product labels to identify chemicals in your workplace that have low exposure limits, are highly volatile, or are used in large quantities or in unventilated spaces. Identify activities that may result in skin exposure to chemicals.
- Identify *physical hazards*—identify any exposures to excessive noise (areas where you must raise your voice to be heard by others), elevated heat (indoor and outdoor), or sources of radiation (radioactive materials, X-rays, or radiofrequency radiation).
- Identify *biological hazards*—determine whether workers may be exposed to sources of infectious diseases, molds, toxic or poisonous plants, or animal materials (fur or scat) capable of causing allergic reactions or occupational asthma.
- Identify *ergonomic risk factors*—examine work activities that require heavy lifting, work above shoulder height, repetitive motions, or tasks with significant vibration.
- Conduct *quantitative exposure assessments*—when possible, using air sampling or direct reading instruments.
- Review *medical records*—to identify cases of musculoskeletal injuries, skin irritation or dermatitis, hearing loss, or lung disease that may be related to workplace exposures.

## Action item 4: Conduct incident investigations

Workplace incidents –including injuries, illnesses, close calls/near misses, and reports of other concerns– provide a clear indication of where hazards exist. By investigating incidents and reports, you will identify hazards that are likely to cause future harm.

## ABOUT US

## SafetySmart

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- Develop a clear plan and procedure for conducting incident investigations, so that an investigation can begin immediately when an incident occurs. The plan should cover items such as:
  - Who will be involved
  - Lines of communication
  - Materials, equipment, and supplies needed
  - Reporting forms and templates
- Train investigative teams on incident investigation techniques, emphasizing objectivity and open-mindedness throughout the investigation process.
- Conduct investigations with a trained team that includes representatives of both management and workers.
- Investigate close calls/near misses.
- Identify and analyze root causes to address underlying program shortcomings that allowed the incidents to happen.
- Communicate the results of the investigation to managers, supervisors, and workers to prevent recurrence.

#### **Action item 5: Identify hazards associated with emergency and non-routine situations**

Emergencies present hazards that need to be recognized and understood. Non-routine or infrequent tasks, including maintenance and startup/shutdown activities, also present potential hazards.

Plans and procedures need to be developed for responding appropriately and safely to hazards associated with foreseeable emergency scenarios and nonroutine situations.

- Identify foreseeable emergency scenarios and nonroutine tasks, taking into account the types of material and equipment in use and the location within the facility. Scenarios such as the following may be foreseeable:
  - Fires and explosions
  - Chemical releases
  - Hazardous material spills
  - Start ups after planned or unplanned equipment shutdowns
  - Non-routine tasks, such as infrequently performed maintenance activities
  - Structural collapse
  - Disease outbreaks
  - Weather emergencies and natural disasters
  - Medical emergencies
  - Workplace violence

A critical element of any effective safety and health program is a proactive, ongoing process to identify and assess such hazards.



#### **Action item 6: Characterize the nature of identified hazards, identify interim control measures, and prioritize the hazards for control**

The next step is to assess and understand the hazards identified and the types of incidents that could result from worker exposure to those hazards. This information can be used to develop interim controls and to prioritize [hazards for permanent control](#).

- Evaluate each hazard by considering the severity of potential outcomes, the likelihood that an event or exposure will occur, and the number of workers who might be exposed.
- Use interim control measures to protect workers until more permanent solutions can be implemented.
- Prioritize the hazards so that those presenting the greatest risk are addressed first. Note, however, that employers have an ongoing obligation to control all serious recognized hazards and to protect workers.

[Click here](#) to read the full article ❖

## Protect Your Hearing and Avoid Hearing Loss

### WHAT'S AT STAKE?

As the saying goes, "better the devil you know than the devil you don't." Our sly, unknown devil here is noise because it causes a host of health problems, with painless symptoms that progress unnoticed until it is too late. Even more disturbing is that the ears become accustomed to noise and the brain accepts it as normal, after a short while. Do not be fooled though, noise-induced hearing loss cannot be reversed!

### WHAT'S THE DANGER?

Damage from long-term exposure to excessive noise includes deafness, tinnitus (ringing in the ears), anxiety, depression, stress, and headaches. Loss of hearing from high noise makes it hard to hear warnings and directions and this can lead to accidents. Though most employers make great effort to protect workers from noise hazards, sometimes, the problem is not what is done but how it is done.

Some workplaces might not understand what level of noise is harmful and this creates room for error while implementing controls. But safety regulations require employers to protect workers from excessive noise; this means, having a program that regulates noise exposure through noise level assessments, hearing protection, employee training and hearing tests. Without this program and its annual reviews, control measures are useless and may even become hazardous.

### HOW TO PROTECT YOURSELF

The best way to prevent hearing damage is by avoiding exposure to excessive noise. Noisy jobs should be identified, and control measures put in place.

Control measures might include:

- Installing sound-dampening or sound-proofing materials.
- Enclosing a noisy process or equipment.
- Regular maintenance.
- Job rotation - to lessen exposure time.
- Putting up signage to warn workers hearing protection is required.

Workers can prevent hearing loss by:

- Staying informed and watching for warning signs, such as ringing or humming in your ears and temporary loss of hearing when you leave work.
- Wearing and maintaining all hearing protection provided by your employer.
- Using the right hearing protection for the job, task, or area.
- Participating in your employer's audiometric program and understanding the results of your hearing tests.
- Asking questions about noise levels, hearing protection, and other noise and hearing related issues, as soon as you have a concern.

### FINAL WORD

*Hearing loss is permanent. Once your hearing is gone the damage can't be reversed. Prevention is your only option; protect your hearing while you still have it. ❖*

**Meeting material to go:** Safety meeting materials such as presentation tips, PowerPoint presentations, quiz answers and more are downloadable at: [www.SafetySmart.com](http://www.SafetySmart.com)

## TEST YOUR KNOWLEDGE

1. Damage caused by excess noise is gradual and painless.  
 True  False
2. Loss of hearing cannot lead to accidents:  
 True  False
3. Deafness can result from hearing damage.  
 True  False
4. One type of hearing protection is right for all types of jobs.  
 True  False

### What Would You Do?

If you had to work in hot weather and the required PPE for that particular job includes, a helmet that feels heavy, eye goggles that make your vision fuzzy and ear muffs that feel sweaty and uncomfortable, what would you do?

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## Why Accidents Happen and How to Avoid Them

### WHAT'S AT STAKE?

Accidents may seem like a word used only in safety briefings until one occurs. When it does happen, it comes along with reeling effects: injuries, death, court prosecutions, loss of property, damage to company reputation and the environment. The resultant slowdown in business and work activities further drives down income. However, the immediate and remote causes of workplace accidents can almost always be traced to unsafe acts and unsafe conditions.

### WHAT'S THE DANGER?

Unsafe acts are human-related actions that threaten the health and safety of workers. Examples of unsafe acts:

- Taking shortcuts which involve by-passing safety instructions and procedures that are meant to protect workers from harm. These include carrying out a job without performing a job safety analysis (JSA), engaging in high-risk work without a work permit. Aside from granting work permission, permits also contain important information, such as emergency response, appropriate PPE, hazards and precautions, the name of responsible personnel.
- Inadequate training. Imagine driving a car on a freeway, after a few informal lessons, without learning the traffic laws and undergoing a driving test. Wouldn't your inability to understand traffic laws and your lack of driver training increase the chances of an accident occurring? Lack of training makes it much more likely you will be in an accident at work too!
- Using damaged or faulty work tools and equipment is an unsafe act and a big safety hazard.

- Engaging in horseplay during work activities reduces your concentration and makes it harder to observe safety rules. It also makes it difficult to get a full description of an accident and might affect your right to a compensation or health insurance.
- Abusing drugs or working under the influence of drugs and alcohol limits mental focus, slows your reaction time, affects balance and coordination. These factors make you a hazard to yourself and your co-workers.

Unsafe conditions are hazardous, managerial, physical and environmental conditions that exist in the workplace; they play a crucial role in triggering accidents.

- Environmental hazards: example, extreme weather conditions, fires, oil spill, gas leakage.
- Equipment failure.
- Inadequate communication: example, no safety meetings, toolbox talks, safety signage, safety policies, or safe work procedures.
- Poor safety culture: no reporting systems, recordkeeping.
- Poor housekeeping

### HOW TO PROTECT YOURSELF

- Obey all safety rules (including the use of PPE); they are for your protection.
- Only carry out tasks you are trained for; especially tasks requiring special skills.
- Never mix work with play, it is harmful in more ways than one.
- Always inspect your work tools/equipment in order to detect damages and report them.

- Do not abuse drugs and never work under the influence of drugs or alcohol.
- Take a permitted break from work whenever you are mentally stressed out.
- Maintain good housekeeping before, during and after work.
- Ensure proper understanding by asking questions and repeating during communication.
- Always inspect the work environment for strange changes before any activity.

### FINAL WORD

*Accidents are caused by our actions and inactions; the most important step towards avoiding them is identifying and addressing their causes. Report unsafe acts and conditions as soon as you see them and don't engage in unsafe acts. ❖*

## TEST YOUR KNOWLEDGE

1. Taking shortcuts include working without permits where required.  
 True  False
2. Causes of accidents can almost always be traced to unsafe acts and unsafe conditions.  
 True  False
3. Safety rules are meant to slow our work down.  
 True  False
4. Inspecting work equipment before working is a sign of laziness.  
 True  False

### What Would You Do?

A minor oil spill was identified during a workplace inspection and your direct boss is pressuring you to get it cleaned up today, but the job requires a work permit which will only be available tomorrow. What would you do to protect yourself and your impatient boss?

## POLICIES AND PRACTICES

## Noise Control &amp; Hearing Protection

**1. Do You Properly Measure Sound Levels?** Yes  No

As with other hazards, assessment is the first step in controlling noise hazards. Basically, your employer is required to find out how loud it is by measuring sound levels in areas where noise could be at hazardous levels. Sound levels can be scientifically measured, and you may be asked to assist in various aspects of a noise survey.

**Do You Properly Calculate Worker Exposure Levels?** Yes  No

Safety regulations dictate that an employer analyze the data to assess if workers are exposed to hazardous levels of noise. You must measure noise levels in A-weighted decibel units. The so-called dBA scale measures sound pressure modified to account for the ear's different levels of sensitivities to sounds of different frequencies.

To perform the required assessment, you must consider not just sound intensity but how long workers are exposed to it. Exposure to sound above 85 dBA must be reduced in duration; the higher the sound level, the shorter the duration.

**3. Do You Properly Determine Workers' Need for Hearing Protection?**  Yes  No

When exposure levels go above 85dBA, employers must provide hearing protection that will reduce the noise levels below 85dBA.

**4. Do You Use Hierarchy of Controls' to Select Hearing Protection Measures?**  Yes  No

Having determined that noise hazards exist (if you come to the opposite conclusion, you can stop reading), it becomes a matter of figuring out how to control them. The safety regulations give you discretion to select your own controls based on what's "practicable" in the circumstances; but they also mandate the approach you must follow in exercising your discretion: the so called "hierarchy of controls." Items 5 thru 8 below, explain how to implement the hierarchy for noise hazards.

**5. Do You Eliminate Noise Hazards If Practicable?** Yes  No

The top of the hierarchy, and measure to always consider first, is total elimination of the hazard. In the context of noise hazards, that generally involves getting rid of dangerously noisy machinery and equipment and substituting safer alternatives.

**6. Do You Implement Appropriate Engineering Controls?** Yes  No

If, as will likely be the case, elimination isn't practicable, the next layer of preference are engineering controls to eliminate or minimize noise hazards. Some engineering

controls eliminate noise hazards at the source, such as:

- Redesigning, modifying or retrofitting equipment, e.g., via installation of mufflers or noise damping materials; and/or
- Relocating noisy machinery and equipment.

Other engineering controls eliminate noise hazards along their path to the worker. Examples:

- Installing sound-absorbing materials in or enclosing noisy work areas; and/or
- Screening or shielding noisy equipment.

**7. Do You Implement Appropriate Administrative & Work Controls?**  Yes  No

The next rung down in the hierarchy are measures that minimize hazards by controlling how and when the work is performed. For example, work/administrative controls for noise hazards would include modifying work schedules to limit how long workers are exposed and rotating workers in and out of noise hazard areas.

**8. Do You Ensure Proper PPE Use when Noise Hazards Can't Be Engineered Away?**  Yes  No

The bottom layer of the hierarchy is controlling hazards via PPE, i.e., making workers exposed to noise hazards use personal hearing protection. While perfectly okay as a complementary measure, personal hearing protection is generally not allowed as the primary method of protection except in narrow circumstances where engineering controls are unavailable, ineffective or otherwise impracticable.

**9. Do You Post Proper Warning Signs?**  Yes  No

Employers must post clearly worded noise hazard warning signs.

**10. Do You Provide Workers Proper Education & Training?**  Yes  No

As with any other hazard, workers required to use hearing protection or otherwise exposed to hazardous noise levels must receive education and training from a competent trainer covering, at a minimum:

- The hazards of exposure to excessive noise;
- How hearing protection protects against such hazardous exposure;
- The capabilities and limitations of the particular types of hearing protection devices used;
- The importance of ensuring a tight and comfortable fit;
- How to get a tight seal between earplugs and the ear canal;
- How to get a tight seal between earmuffs and the side of head;
- How to inspect the equipment;

- How to clean, disinfect and maintain the equipment;
- Why it's important *not* to modify the equipment, e.g., by drilling holes in earcups; and
- Key details about the audiometric testing being done, how it works and what they must do to best benefit from testing.

**11. Do You Provide Workers Required Audiometric Testing?**  Yes  No

Occupational hearing loss tends to be gradual and cumulative. By the time workers notice a problem, it's often too late to reverse the damage. Audiometric testing by medical professionals is capable of detecting hearing damage *before* symptoms are perceived. The way it works: Workers exposed to potentially hazardous noise levels receive initial testing before exposure. Testers can then track the impact of exposure on hearing by comparing the results of subsequent tests to the individual's "baseline" results.

**12. Do You Monitor the Effectiveness of Your Noise Control Measures?**  Yes  No

The final phase is to monitor the validity of your noise assessment and effectiveness of your noise control program and/or non-program measures at least once a year and immediately in response to:

- Worker complaints or symptoms indicating ringing in the ears or hearing loss;
- Changes to equipment, machinery, tools, or work conditions that increase or have the potential to increase either: (i) how much noise the worker is exposed to; and/or (ii) the exposure's duration;
- Before the construction of significant additions or alterations to a work site that have the potential to create noise hazards; and
- Any other indications suggesting that your assessment and safety measures might be ineffective or unresponsive to current work site conditions and noise hazards. ❖

## SHOP TALK: Helping Employees Conquer Workplace Stress

Workplace stress is normal - but when the stress is excessive it can wreak havoc on the productivity, performance, and physical and emotional health of your employees. It can also interfere with job safety. You can help your employees deal with stress in several ways.

First, you must be aware of common causes of workplace stress.

- Fear of being laid off
- More overtime due to staff cutbacks
- Pressure to perform to meet rising expectations but with no increase in job satisfaction
- Pressure to work at optimum levels—all the time!
- Lack of control over how you do your work

Next, know and educate employees on the signs of excessive workplace stress.

- Feeling anxious, irritable, or depressed
- Apathy, loss of interest in work
- Problems sleeping
- Fatigue
- Trouble concentrating
- Muscle tension or headaches
- Stomach problems
- Social withdrawal
- Loss of sex drive
- Using alcohol or drugs to cope

Then, encourage employees to try these stress busting tips.

**1. Exercise**

- a. Working out regularly is one of the best ways to relax your body and mind.
- b. Plus, exercise will improve your mood. But you have to do it often for it to pay off.
  - *Good:* At the very least, 3 to 5 times for 30 minutes
  - *Better:* 2 hours and 30 minutes of moderately intense exercise like brisk walks
  - *Best:* Add 75 minutes of a vigorous exercise like swimming laps, jogging, or other sports that gets your heart rate up

**2. Eat well**

- a. Eating a regular, well-balanced diet helps you feel better in general. It may also help control your moods.
- b. Aim for meals full of vegetables, fruit, whole grains, and lean protein for energy. And don't skip any. It's not good for you and can put you in a bad mood, which can actually increase your stress.

**3. Sleep well**

- a. Try to improve the quality of your sleep by going to bed and getting up at the same time every day, even on weekends. Aim for 8 hours a night—the amount of

sleep most adults need to operate at their best.

- b. Turn off screens one hour before bedtime. The light emitted from TV, tablets, smartphones, and computers suppresses your body's production of melatonin and can severely disrupt your sleep.
- c. Avoid stimulating activity and stressful situations before bedtime such as catching up on work. Instead, focus on quiet, soothing activities, such as reading or listening to soft music, while keeping lights low.

**4. Chill out**

- a. When you're driving on the highway, switch to the slow lane so you can avoid road rage.
- b. Break down big jobs into smaller ones. For example, don't try to answer all 100 emails if you don't have to -- just answer a few of them.
- c. Try yoga, meditation, listening to music you like and other relaxing activities and hobbies.

**5. Talk it out**

- a. Find a friend, co-worker, or family member you feel comfortable sharing your feelings with.
- b. Talking about things that are troubling you can help lower your stress. ❖

## FATALITY REPORT

**Solvent Linked to Suicide**

**C**ould exposure to a workplace solvent cause someone to commit suicide? A coroner in Wellington, New Zealand, says it could.

He conducted an inquest into the death of a worker in the printing industry who stepped in front of a commuter train and was killed instantly.

The coroner ruled the victim was suffering from solvent-induced neurotoxicity nervous system effects caused by solvent poisoning. Testimony at the coroner's inquest indicated the victim had been anxious, depressed and suffering from multiple health problems.

The coroner called for more research into the effects of industrial chemicals on workers.

A study by the National Institute for Occupational Safety and Health (NIOSH) in the United States found that organic solvents cause acute and chronic effects on the human central nervous system. Changes can include personality and mood shifts such as emotional instability, depression, and diminished impulse control, motivation, concentration, memory and learning capacity..

**Final Word**

NIOSH says the nervous system effects of exposure to organic solvents can cause deaths and increase risk of accidental injury at work and away from the job. The institute has identified areas of research needed on solvents, including tests to determine neurotoxicity, improved monitoring of exposures, better ways to prevent worker exposure and determining to what extent solvent exposure increases injury risk at work and away from work. ❖



## SPOT THE SAFETY VIOLATION

**Defying the Laws of Physics and Common Sense**

**I**t's almost hard to know where to begin this one - but once the shock and awe wears off, it's obvious there's a lot wrong with this picture.

First, the workers in this picture aren't wearing any sort of PPE. No hard hats, safety glasses, fall protection, or safety shoes, just to state the obvious.

Second, the obvious unsafe use of a ladder. Only one person should be on a ladder at a time. The area around the ladder's base is not cleared of trip and fall hazards. You should never stand on the top two rungs of a stepladder.

Third, while we don't know for sure, it does look a bit stormy in the background. Lightning and other weather-related hazards could very likely be present. If that's the case, these workers should seek shelter immediately or they all three could end up being a lightning rod! ❖